IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

WINTER, et al.

Appl. No. 09/781,150

Filed: February 13, 2001

For: **System for Withdrawing and Dewatering Slag from Gasification Equipment** (as amended)

Art Unit: To be Assigned

Examiner: To be Assigned

Atty. Docket: 06950.0167.DVUS01

Confirmation No.: To be Assigned

SECOND PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants submit the following Preliminary Amendment. It is not believed that extensions of time or fees for net addition of claims are required beyond those that may otherwise be provided for in documents accompanying this paper. However, if additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required therefor are hereby authorized to be charged to our Deposit Account No. 08-3038, referencing the above docket number.

A check in the amount of **$486.00** is enclosed for excess claim fees. The U.S. Patent and Trademark Office is hereby authorized to charge any fee deficiency, or credit any overpayment, to our Deposit Account No. 08-3038 referencing docket number.

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AMENDMENT

In the Claims:

Please re-enter claims 37-69. These claims were inadvertently deleted in the First Preliminary Amendment.

-- **37.** A conveying lockhopper for use with a gasification system, said conveying lockhopper comprising:

a housing, said housing being substantially cylindrical in shape and inclined with spaced apart upper and lower ends;

an inlet aperture disposed at the lower end of said housing and configured to receive slag from the gasification system;

an outlet aperture disposed at the upper end of said housing;

a rotatable shaft disposed within said housing, said shaft comprising a plurality of threads, said threads being configured on said shaft to convey the slag from the lower end of said housing toward the upper end of said housing as said shaft rotates; and

wherein slag enters said housing through said inlet aperture, said shaft conveys the slag towards said outlet aperture, and the slag exits said housing through said outlet aperture.

38. The conveying lockhopper of claim 37, wherein a length of said housing is at least twice a diameter of said housing.

39. The conveying lockhopper of claim 37, wherein said housing is inclined at an angle between approximately 5 degrees and approximately 60 degrees, with respect to a horizontal position.

40. The conveying lockhopper of claim 37, wherein said housing is capable of being pressurized.

41. The conveying lockhopper of claim 37, further comprising:

a motor for rotating said shaft, said motor being disposed outside of said housing;

an upper bearing for supporting said shaft at the upper end of said housing;

a lower bearing for supporting said shaft at the lower end of said housing; and

wherein said shaft extends through an opening in one of the ends of said housing, said motor being coupled to said shaft.

42. The conveying lockhopper of claim 41, wherein said upper bearing is a fixed pillow bearing.

43. The conveying lockhopper of claim 41, wherein said lower bearing is a thrust bearing.

44. The conveying lockhopper of claim 41, further comprising a shroud substantially encasing said lower bearing.

45. The conveying lockhopper of claim 44, wherein said shaft penetrates said shroud, and wherein an opening is formed between said shaft and said shroud where said shaft penetrates said shroud.

46. The conveying lockhopper of claim 45, wherein said opening between said shaft and said shroud is between approximately 0.025 inches and approximately 0.25 inches.

47. The conveying lockhopper of claim 41, further comprising a purge inlet into which fluid is passed to purge said lower bearing.

48. The conveying lockhopper of claim 41, further comprising a lubricant plug such that lubricant can be added to said lower bearing.

49. The conveying lockhopper of claim 41, wherein said motor is a hydraulic drive motor.

50. The conveying lockhopper of claim 41, wherein said motor is a variable speed motor.

51. The conveying lockhopper of claim 41, wherein said motor is reversible.

52. The conveying lockhopper of claim 41, wherein said housing comprises a seal at the end where said shaft extends through the end of said housing.

53. The conveying lockhopper of claim 47, wherein said seal is a double mechanical seal.

54. The conveying lockhopper of claim 47, wherein said seal is a packing seal.

55. The conveying lockhopper of claim 47, further comprising a means for purging said seal.

56. The conveying lockhopper of claim 47, further comprising a tube configured to deliver a fluid to a location where said shaft of said auger extends through the opening in said housing.

57. The conveying lockhopper of claim 37 wherein a pitch of said threads is between approximately 0.5 times and approximately 1.0 times a diameter of said housing.

58. The conveying lockhopper of claim 37, wherein said shaft further comprises a plurality of reversed threads at the upper end, said reversed threads being configured on said shaft in a direction opposite to said threads.

59. The conveying lockhopper of claim 58, wherein said threads and said reversed threads are both configured to convey slag toward said outlet aperture.

60. The conveying lockhopper of claim 37, wherein said plurality of threads comprises a perforated thread.

61. The conveying lockhopper of claim 37, wherein said plurality of threads comprises a slotted thread.

62. The conveying lockhopper of claim 37, wherein said plurality of threads comprises a notched thread.

63. The conveying lockhopper of claim 37, wherein said plurality of threads comprises a partially truncated thread.

64. The conveying lockhopper of claim 37, wherein said plurality of threads comprises threads of different thicknesses.

65. The conveying lockhopper of claim 64, wherein at least one of said plurality of threads has a thickness greater than the thickness of the remaining threads, and wherein said at least one thread is disposed at a lower end of said shaft.

66. The conveying lockhopper of claim 64, wherein a thread nearest to the lower end has the greatest thickness, a thread nearest to the upper end has the least thickness, and wherein the thickness of said threads decreases along the length of said shaft.

67. The conveying lockhopper of claim 37, further comprising a pipe for storing slag prior to discharge.

68. The conveying lockhopper of claim 67, wherein said pipe receives slag from said outlet.

69. The conveying lockhopper of claim 67, wherein said pipe is capable of being pressurized. --

Remarks

Entry of this Preliminary Amendment is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,

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Date: March 23, 2001

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